
Grant Application

**Fish Passage Improvement Project
at the Red Bluff Diversion Dam**

**Balance of Phase II Funding
With Requested Change of Scope**

Prepared for

CALFED

Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, California 95814

Prepared by

Tehama-Colusa Canal Authority
P.O. Box 1025
Willows, California 95988

May 15, 2000

Proposal # **2001-L-210** (Office Use Only)

PSP Cover Sheet (Attach to the front of each proposal) **Fish Passage Improvement Project at**
Proposal Title: the Red Bluff Diversion Dam - Balance of Phase II Fundina With
Applicant Name: Tehama-Colusa Canal Authority Requested Chanae of Scope
Contact Name: Arthur R. Bullock, General Manager & Chief Engineer
Mailing Address: P.O. Box 1025, Willows, CA 95988
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Amount of funding requested: \$ 1,574,000

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.

State cost N/A

Federal cost N/A

Cost share partners? x Yes No

Identify partners and amount contributed by each TCCA - \$139,000 for contract administration
Plus O&M costs for the facilities constructed as a result of this project.

Indicate the Topic for which you are applying (check only one box).

- | | |
|--|--|
| <input type="checkbox"/> Natural Flow Regimes | <input type="checkbox"/> Beyond the Riparian Corridor |
| <input type="checkbox"/> Nonnative Invasive Species | <input type="checkbox"/> Local Watershed Stewardship |
| <input type="checkbox"/> Channel Dynamics/Sediment Transport | <input type="checkbox"/> Environmental Education |
| <input type="checkbox"/> Flood Management | <input type="checkbox"/> Special Status Species Surveys and Studies |
| <input type="checkbox"/> Shallow Water Tidal/ Marsh Habitat | <input type="checkbox"/> Fishery Monitoring, Assessment and Research |
| <input type="checkbox"/> Contaminants | <input checked="" type="checkbox"/> Fish Screens |

What county or counties is the project located in? Tehama

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible Sacramento River Zone Number 3.2

Indicate the type of applicant (check only one box):

- | | |
|---|---|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input checked="" type="checkbox"/> Local government/district | <input type="checkbox"/> Tribes |
| <input type="checkbox"/> University | <input type="checkbox"/> Private party |
| <input type="checkbox"/> Other: _____ | |

Indicate the primary species which the proposal addresses (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input checked="" type="checkbox"/> Spring-run chinook salmon |
| <input checked="" type="checkbox"/> Winter-run chinook salmon | <input checked="" type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Delta smelt | <input checked="" type="checkbox"/> Steelhead trout |
| <input checked="" type="checkbox"/> Splittail | <input type="checkbox"/> Striped bass |
| <input checked="" type="checkbox"/> Green sturgeon | <input checked="" type="checkbox"/> All chinook species |
| <input type="checkbox"/> White Sturgeon | <input checked="" type="checkbox"/> All anadromous salmonids |
| <input type="checkbox"/> Waterfowl and Shorebirds | <input type="checkbox"/> American shad |
| <input type="checkbox"/> Migratory birds | |
| <input type="checkbox"/> Other listed TIE species: _____ | |

Indicate the **type** of project (check **only** one **box**):

- | | |
|---|---|
| <input type="checkbox"/> Research/Monitoring | <input type="checkbox"/> Watershed Planning |
| <input type="checkbox"/> Pilot/Demo Project | <input type="checkbox"/> Education |
| <input checked="" type="checkbox"/> Full-scale Implementation | |

Is this a next-phase of an ongoing project?

Yes X No _____

Have you received funding from CALFED before?

Yes X No _____

If yes, list project title and CALFED number Fish Passage Improvement Project at the Red Bluff Diversion Dam, Phase I, 99-B07.

Have you received funding from CVPIA before?

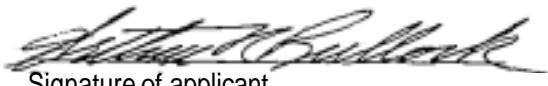
Yes _____ No X

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

By signing below, **the** applicant **declares** the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and Confidentiality of the proposal on behalf of the applicant. to the extent as provided in the Section.

Printed name of applicant


Signature of applicant

Executive Summary (1 page)

Title of Project and Amount Requested

Fish Passage Improvement Project at the Red Bluff Diversion Dam, **Balance of Phase II Funding With Requested Change in Scope**

Amount Requested: \$1,574,000

Applicant

Tehama-Colusa Canal Authority
P.O. Box 1025

Willows, California 95988

Contact: Mr. Arthur R. Bullock, General Manager

Phone: 530/934-2125; **Fax:** 530/934-2355; **E-mail:** tcwaterman@aol.com

Participants and Collaborators

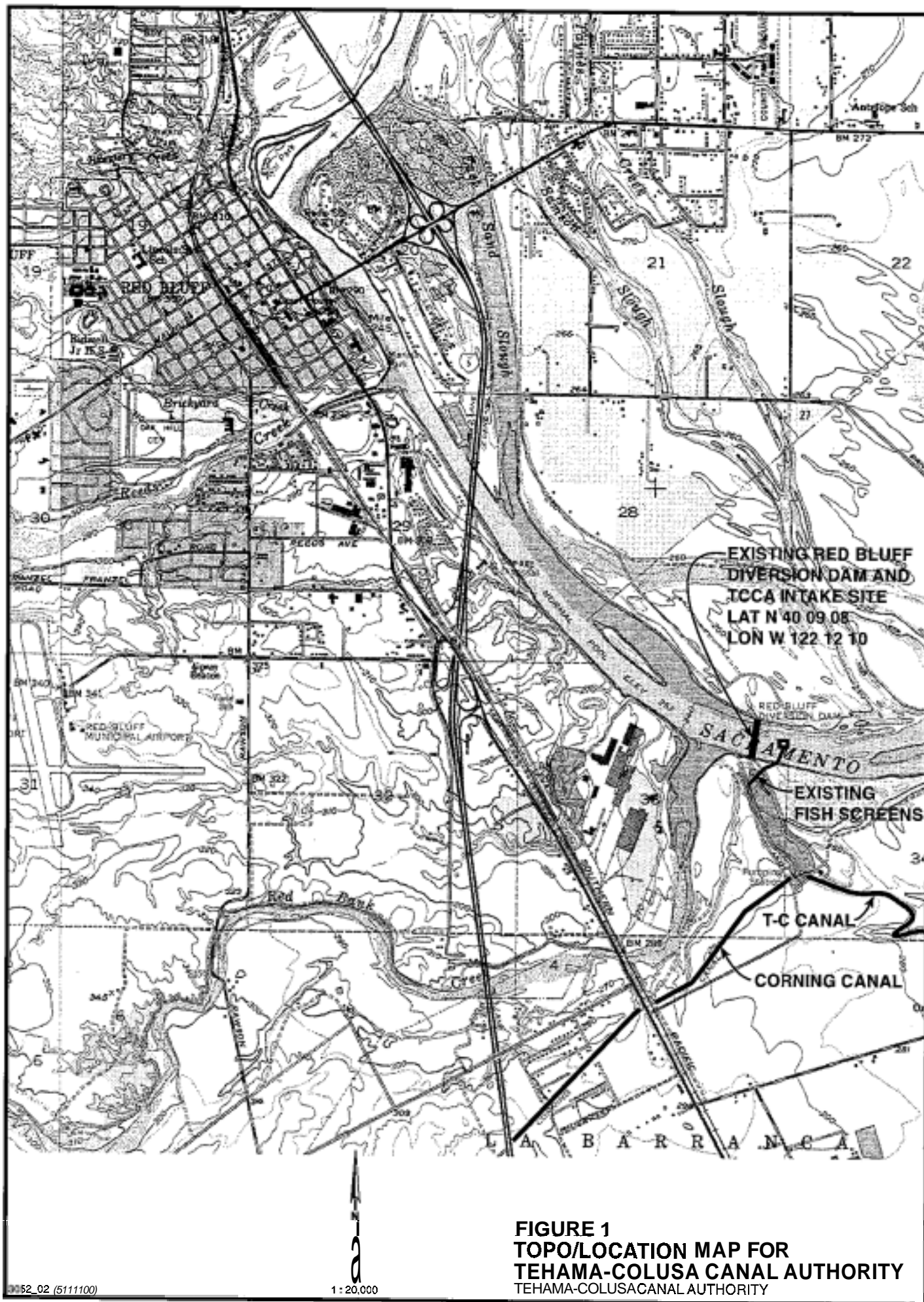
U.S. Bureau of Reclamation, California Department of Water Resources, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game

Project Description

The project is located on the main stem of the Sacramento River at the upper end of the Butte and Colusa Basin Watersheds in Tehama County (Figure 1). The objectives of this full implementation project are to reduce or minimize the impacts of the RBDD on upstream and downstream migration of juvenile and adult anadromous fish, while improving the reliability of agricultural water supply. The feasible alternative approaches involve various RBDD "gates-in" and "gates-out" scenarios, accompanied by improvements to existing facilities and construction of new fish ladders, fish screens, and pumping facilities. These approaches were identified during the Phase I Feasibility Study, partly funded by CALFED in 1998, that culminated in the January 2000 *Prescoping Report: Tehama-Colusa Canal Authority Fish Passage Improvement Project at the Red Bluff Diversion Dam* (Prescoping Report) (CH2M HILL, 2000).

The scientific hypothesis to be evaluated is that the proposed project reduces risk of blockage and impedance of upstream and downstream migrating adult and juvenile salmon past the RBDD by reducing or eliminating the dependence of agricultural irrigation water supply on the existing RBDD facilities and operations. Uncertainties about the project have been reduced to a choice among the feasible alternatives identified in the Prescoping Report. The expected outcomes of Phase II of the project are preliminary design of the project facilities and a NEPA/CEQA document. Subsequent phases will result in final design, construction, operation, and monitoring of the facilities.

The proposed project is compatible with the CALFED Bay-Delta Program, Biological Opinion for Operation of the RBDD, RBDD Research Pumping Plant evaluation project, RBDD Long-term Fish Passage Program, Draft Winter-run Salmon Recovery Plan, Central Valley Project Improvement Act (CVPIA) through the Anadromous Fish Restoration Program (AFRP), and the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act of 1988. The project addresses CALFED ecological restoration targets and programmatic actions identified for "Dams and Other Structures" in CALFED's Environmental Restoration Program Plan (ERPP) (CALFED, 1999a, Volume II, page 190).



Project Description

This is one of two proposals submitted by the Tehama-Colusa Canal Authority (TCCA) to complete the remaining work on Phase II of the Fish Passage Improvement Project at the Red Bluff Diversion Dam. At the recommendation of CALFED staff and the Bureau of Reclamation (Reclamation), we have prepared two separate proposals because a decision has not yet been rendered by CALFED on our request for a change in scope for the funded portion of Phase II. By submitting two proposals, the remaining work can be accommodated regardless of the outcome of this change of scope request. After the decision has been made on our request for change in scope, the proposal that no longer applies will be withdrawn. The two proposals cover different courses of action for completing the unfunded Phase II work. **Under this proposal, the funding would be used to complete and/or initiate and complete Tasks 1 through 7, as appropriate, according to the change in scope.** The purpose of the requested change in scope was to expedite the project, make more efficient use of the currently approved funding, and better comply with CALFED standard terms and conditions. Whatever the outcome of our requested change in scope, we will apply the new funding resulting from this proposal to complete the remaining portions of work associated with Phase II.

Statement of Problem

Problem

Fish passage and agricultural water diversion needs at the Red Bluff Diversion Dam (RBDD) currently conflict. When the RBDD gates are lowered into the Sacramento River, the elevation of the water surface behind the dam is raised, allowing gravity diversion into the Tehama-Colusa and Coming canals for delivery to irrigation districts. Raising the gates ("gates-out" position) allows the river to flow unimpeded but precludes gravity diversion into the canals. When the gates are lowered ("gates-in" position) to facilitate diversions, RBDD presents a barrier for both upstream- and downstream-migrating fish. Also, during downstream migration, juvenile salmonids are subject to increased predation during the "gates-in" period (USFWS, 1998). Fish ladders included in the original dam design are inefficient at certain flows to pass anadromous fish to upstream spawning grounds. Additionally, the tailrace and lake created by the dam provide habitat for species that prey on juvenile salmon, reducing their overall survival rates. According to the CALFED ERPP (Volume II, 1999a, page 163), "Fish passage facilities are inadequate" at the RBDD. Fish passage at the RBDD is crucial, because more than 75 percent of naturally spawning chinook salmon in the Sacramento River spawn in the reach from the RBDD to Keswick Dam.

Reclamation, with input from the California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS), identified a range of alternatives to improve fish passage at the RBDD (Reclamation, 1992) during a period when the RBDD was operating with "gates-in" for 8 months each year. A Biological Opinion for endangered winter-run chinook salmon issued in 1993 by the National Marine Fisheries Service (NMFS) requires that the gates be kept in the "gates-out" position for a greater portion of the year (September 15 to May 14) than had been required previously, which precluded the solutions identified by Reclamation in 1992. The increased "gates-out" operation has significantly improved fish passage at RBDD, but has made the facility less effective as a water source for agriculture. As stated in the CALFED ERPP (Volume II, 1999a, page 163), "Fish passage at RBDD is a longstanding problem that has been partially solved through reoperation. This

interim fix has constrained water diversion, and the longer term resolution needs to incorporate fish passage and survival and water delivery.”

The current “gates-in” schedule may be subject to further reduction, if it is found reasonable and prudent to do so to avoid jeopardy to species of concern, which would further reduce RBDD’s ability to divert water for agriculture during critical periods (CH2M HILL, 2000). The TCCA seeks to identify and implement a feasible structural solution, assuming that the annual “gates-out” period would be for 8 months or longer, to substantially improve both fish passage at RBDD and the reliability of water deliveries to the 17 irrigation districts served by the canal systems from the RBDD (collectively the “TCCA districts”).

Conceptual Model

The conceptual model for the entire project is represented on Figure 2. The overall conceptual model shows that RBDD constitutes an impediment to salmon migration in the Sacramento River. During upstream immigration, salmon and steelhead natal to Clear, Cottonwood, Battle, Cow, and Bear creeks and the Sacramento River are hindered or prevented from accessing those areas by operations of the RBDD (CH2M HILL, 2000). The location of the dam and the magnitude of the hindrance make RBDD the most significant fish barrier in the Sacramento Valley. Likewise, during downstream emigration, juvenile salmon are subject to increased mortality during the “gates-in” period due to increased predation (USFWS, 1998).

Figure 3 presents the conceptual model for Phase II of the project. This conceptual model demonstrates the different management approaches represented by the three alternatives. Alternative 1 operates under the assumption that the overall effect of RBDD on downstream emigration is minimal, and that installing new, state-of-the-art fish ladders would alleviate the problem of RBDD as a fish barrier. Alternative 2 would reduce the period of “gates-in” operation to a 2-month period between July 1 and August 31, coincidentally the period with fewest juvenile salmon passing the RBDD and the peak demand period for irrigation districts along the TC and Coming canals. However, this alternative would still require new fish ladders, as upstream migration still occurs between July and August. Alternative 3 would eliminate “gates-in” operations entirely. All three alternatives include installation of additional pumping capacity in order to increase water-supply reliability to TCCA. Phase II is intended to result in the selection of the most preferable alternative.

Hypotheses Being Tested

The scientific hypotheses to be evaluated are that upstream adult passage through the RBDD will improve with modified operations and/or facilities following the proposed project, and downstream juvenile and smolt passage through the RBDD will improve with modified operations and/or facilities following the proposed project.

Adaptive Management

Figure 4 shows the adaptive management process anticipated for the project. The Fish Passage Improvement Project at the RBDD builds upon many years of study and previous adaptive management actions. Since the startup of RBDD and the canal system in 1966, many changes in the operation of the dam and modifications to and additions of onsite facilities have been made to mitigate fish passage impacts. Almost immediately, concerns arose regarding the impact to both upstream and downstream fish migration because the spawning channels intended to offset impacts were not effective and the fish ladders were not as efficient in passing fish as expected. This project recognizes the history of large-scale

adaptive management at RBDD and for the first time attempts to balance the competing interests of fish passage and water supply reliability.

Initially, the gates were maintained in the lowered position ("gates-in") to provide water to spawning channels that were incorporated into the original design of the canal system. These spawning channels, intended to provide supplemental spawning habitat for salmon, were not successful and are no longer in use for that purpose. Fisheries studies over the years have documented that the RBDD impedes the upstream migration of spawning salmonids and causes damage to and higher than normal predation rates on downstream migrating juvenile salmon. One of the primary changes made after startup of the RBDD was the duration of the "gates-in" period when the gates were lowered to raise the level of water upstream from the dam to form Lake Red Bluff and allow gravity flow to the T-C and Coming canals. Initially, the gates were in year-round.

In an effort to improve fish passage, the period of "gates-in" has been gradually decreased over the last 11 years to the current 4 months, from May 15 to September 14. During the remaining 8 months of the year, the dam gates are mandated to be kept out of the river to not impede the upstream and downstream seasonal migration of anadromous fish. This operational change has improved fish passage conditions, but has also forced the TCCA to rely on other methods of water delivery into the canal when the gates are in the "gates-out" position. Pumping capacity at RBDD has also gradually been increased over the years. Beginning with a 165-cfs temporary pumping facility, pumping capacity has been increased to approximately 400 cfs with the installation of a Research Pumping Plant (RPP) in 1993 to investigate the effects of different pumps on juvenile salmon. Water supplies also are being temporarily augmented with short-term diversions from Stony Creek. These supplies are intermittent, however, and not reliable during the periods when they are most needed.

Another major change was made at RBDD in April 1990 when rotary drum screens were installed to replace fish louvers. The fish louvers were not sufficiently effective in keeping fish out of the canals. The drum screens effectively exclude all salmon from the canal systems during gravity diversions.

In short, since its completion, operational and structural changes have been initiated at RBDD in an effort to alleviate impacts to migrating fish. Phase II of the project builds on past actions to identify structural and operational solutions that will improve fish passage while maintaining a reliable supply of water to TCCA districts. This approach is consistent with the CALFED Strategic Plan for Ecosystem Restoration (CALFED, 1999b, page 11). The current actions are also compatible with CALFED solution principles (Affordable, Equitable, Implementable, Durable, Reduced Conflicts, No Redirected Impacts), highlighting the difference between this project and previous actions. However, due to the complex nature of the problem, it is acknowledged that adaptive management of the facility is likely to continue into the future.

Educational Objectives

This project does not have a primarily education focus. However, there is a public involvement effort associated with this project, both in conjunction with the NEPNCEQA process and independent of it. The TCCA has made two presentations regarding the project to the Red Bluff City Council and additional presentations to the Tehama County Farm Bureau and the Red Bluff Chamber of Commerce. There has been press coverage of the project in local newspapers. The TCCA is working with the Sacramento River Discovery Center, a non-profit organization dedicated to enhancing public education regarding the Sacramento River watershed, to disseminate information about the project. The Discovery Center occupies 488 acres of public land adjacent to the RBDD that is jointly managed by the Mendocino National Forest, USBR, and USFWS (see attached letter of support).

Proposed Scope of Work

Location and/or Geographic Boundaries

The project is located on the main stem of the Sacramento River at the upper end of the Butte and Colusa Basin Watersheds in Tehama County. Figure 1, presented in the Executive Summary, shows the Red Bluff Diversion Dam (RBDD) and the current Tehama-Colusa Canal Authority (TCCA) intake site, along with coordinates for the RBDD. Figure 5 shows the TCCA service area and the reach of the Sacramento River being investigated for potential pump station sites. Figure 6 is an aerial photo of the RBDD, which is the focus of the project. Specific sites immediately upstream and downstream of RBDD for new pumping facilities are being investigated.

Approach

The purposes of this project are to 1) improve fish passage at the Red Bluff Diversion Dam by reducing or eliminating TCCA's influence on RBDD operations and 2) enhance the reliability of TCCA's water supply during the spring and fall periods. The range of approaches to achieving these purposes includes developing a completely new screened intake to the Canals and entirely eliminating the need for the RBDD for agricultural irrigation, devising a new operating schedule for the RBDD, incorporating existing pumping facilities and constructing minor additional facilities, or a combination of these elements in conjunction with improved, expanded, or new fish ladders and fish screens.

The Prescoping Report (CH2M HILL, 2000), produced under a CALFED grant during Phase I of this project, summarizes the range of previously identified alternatives to meeting the project's objectives (Reclamation, 1992). At the time of the Reclamation study, the RBDD was operating with "gates-out" for 4 months from December 1 to March 31. However, a Biological Opinion issued in 1993 by NMFS extended the "gates-out" period to the current 8-month period from September 15 to May 14. It is the opinion of the resource agencies that this operational change has resulted in the single biggest improvement in fish passage since the RBDD was constructed (NMFS 1993, USFWS 1998). Accordingly, only approaches that involve no reduction in the current "gates-out" time period may be acceptable to the fisheries agencies. Furthermore, it has also been determined from fisheries studies during the past few years that the existing fish ladders are inefficient for fish passage at certain river flows and that modifications and enlargements will be required for any alternative except those that do not require any "gates-in" operations (CH2M HILL, 2000:5-11).

Addressing these current conditions and constraints, three viable approaches for fish passage improvement and reliable water delivery were defined in the Prescoping Report by the "gates-in" time period:

- Alternative 1—"Gates-in" from May 15 to September 14, as is the current operating procedure.
- Alternative 2—This alternative has been proposed by the fisheries resource agencies to include "gates-in" only during July and August.
- Alternative 3—The "gates-out" position would be maintained at all times, and Lake Red Bluff would no longer exist at any time of the year.

Each of the three alternatives requires that existing facilities be upgraded and new facilities be constructed to meet the stated needs of the project. These facilities include fish ladders, fish screens, and an intake pump station. Even though many alternatives exist to improve the existing facilities, it is the objective of this project to develop the preferred configuration of the facilities to meet the needs of each alternative.

For example, 11 potential offsite pump station locations have been identified, but the objective is to recommend the best location and configuration to meet the project needs.

Monitoring and Assessment Plans

To determine optimal operation of the RBDD following the completion of the proposed project, a multi-year, adaptive management approach to monitoring success of RBDD operations should be conducted. As there is an extensive historical record of monitoring both upstream and downstream migration of anadromous fish at RBDD, at a minimum, the continuation of the existing monitoring programs should be included. The RBDD adult passage program (escapement estimates) and aerial redd surveys conducted annually by CDFG, and adult video monitoring through the existing ladders at RBDD conducted annually by USFWS, should be continued to document pre- and post-project success in immigration.

USFWS conducts annual monitoring activities, such as survival, abundance, and condition, and seasonal spatial and diel distribution patterns of juvenile salmonids passing RBDD. Additional programs are conducted by the USFWS and CDFG and funded by Reclamation, such as the USFWS' RBDD Research Pumping Plant evaluation program and RBDD Passage Facilities Program for both adult and juvenile salmonid passage and rearing. It is anticipated that these programs will be continued and will document success of the project (Table 1).

Table 1

Monitoring and Data Collection Information

Hypothesis/Question to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach	Comment/Data Priority
I) Biological/Ecological Objectives: Improve Upstream Fish Passage			
Adult passage through the RBDD will improve with modified operations and/or facilities following the proposed project	Adult aerial spawning surveys; adult counts, video monitoring and radio telemetry surveys to determine spawning distribution, timing and delay of passage through RBDD	Statistically analyze and compare adult passage success, time to pass estimates, and spawning distribution before and after proposed project	Review existing and previous monitoring programs and project objectives to develop strategy for monitoring program
II) Biological/Ecological Objectives: Improve Downstream Fish Passage			
Juvenile and smolt passage through the RBDD will improve with modified operations and/or facilities following the proposed project	Juvenile beach seining, rotary screw trapping, fyke and trap netting upstream and downstream of RBDD to determine success of passage through RBDD	Statistically analyze and compare juvenile, distribution, passage success, time to pass, and survival estimates before and after proposed project	Evaluate and continue historical and existing monitoring programs where appropriate. Evaluate and incorporate project objectives into future monitoring activities

Data Handling and Storage

It is anticipated that future monitoring programs will be carried out jointly by the USFWS, CDFG, Reclamation, NMFS, and CH2M HILL. Data collected from existing monitoring programs, including

hydraulic monitoring, radio-telemetry, video and observational ladder counting, aerial redd counts, carcass surveys, juvenile beach seining and push netting, fyke netting, and screw trapping will be compared to existing data and integrated to develop an overall assessment of the performance of the new intake or modified RBDD facilities in improving upstream and downstream fish passage. Table 1 summarizes the components of the monitoring program, the types of data that will be collected, and the basis for evaluating the data.

Expected Products/Outcome

The expected outcome of this project is the upgrading or expansion of existing facilities and the design and construction of new facilities that will improve fish passage at the RBDD and provide a more reliable water supply to the TCCA and the irrigation districts that it serves. The first product of the project, produced during Phase I, was the Prescoping Report that presents and screens a range of potential alternatives for achieving these goals. Work products of Phase II include a preliminary design report that provides a detailed analysis of the three alternatives identified in the Prescoping Report and a NEPNCEQA document that evaluates the potential environmental impacts of the project and provides a meaningful opportunity for public input and involvement in the decisionmaking process for selecting a preferred alternative. Subsequent phases will result in the final design, permitting, construction, and operation and monitoring of the selected alternative.

Work Schedule

As shown on Figure 7, Phase II activities are currently underway and the tasks outlined in this proposal will be merged according to CALFED's decision on the change of scope. **For this proposal, it is assumed that the scope amendment is granted.** Accordingly, funding from this proposal would be used to conclude tasks not completed under the current funding. This approach notably minimizes the time to implement a solution at the RBDD.

Feasibility

Project feasibility was assessed in the January 2000 Prescoping Report, which presented and screened alternatives and provided an implementation plan for alternatives found to be viable. The implementation plan included conceptual designs of the alternatives; requirements for environmental documentation, public involvement, permitting, and rights-of-way; capital and O&M cost estimates; and a monitoring approach.

Proposed Scope of Work for Phase II

As noted above, TCCA has submitted two separate proposals to complete the remaining work on Phase II of the Fish Passage Improvement Project at the Red Bluff Diversion Dam, which has been partially funded by CALFED. We have prepared two separate proposals because our request for a change in scope for the funded portion of Phase II has not yet been ruled upon by the Ecosystem Roundtable. One of the two proposals will be withdrawn depending on the ruling of the Ecosystem Roundtable. **This proposal requests funding to complete all seven Phase II tasks.** Tasks to be completed under this proposal are described below.

Task 1, Preliminary Design of Feasible Alternatives

Under this proposal, the currently funded portion of Task 1 work (\$400,000) would include preliminary design of feasible alternatives, schematic design, aerial photography of potential project sites, mapping, draft technical memoranda, facility layout, and conceptual cost estimates. **The balance of funds for Task**

1 requested by this application (\$550,000) would be used for site investigations to identify site-specific constraints, hydraulic evaluations, preliminary environmental screening, identification of right-of-way and permitting requirements, and finalization of technical memoranda.

Deliverables: Technical memoranda describing each alternative.

Task 2, Evaluate Alternatives

This task is currently funded (\$30,000) and is in progress. Alternatives evaluation will continue throughout Phase II in conjunction with Task 4, Environmental Documentation. No additional funding is being requested for this task under the change in scope request.

Deliverables: Alternatives Evaluation Technical Memorandum.

Task 3, Screen Alternatives

This task is currently funded (\$20,000) and is in progress. It is anticipated that several workshops will be held to obtain input from stakeholders and resource agencies in developing the recommended course of actions. No additional funding is being requested for this task under the change in scope request.

Deliverables: Workshop presentation materials describing alternatives, screening criteria, and screening results; these results will, in turn, be incorporated into the NEPNCEQA process.

Task 4, Environmental Documentation

Under this proposal, \$450,000 of the \$1.2 million for this task is currently funded and underway. Work underway includes agency coordination, public scoping and outreach, reconnaissance-level field studies, and a Phase I Property Transfer Assessment of the “Mill Site” to investigate the potential for hazardous materials on the site. The product would be a substantial administrative draft NEPA/CEQA document, anticipated to be an EISEIR, that will serve as a starting point for cooperating agencies to consider the effects of the project.

This proposal seeks an additional \$750,000 to complete Task 4. These additional funds would be used for environmental screening of alternatives, continued agency coordination and public and stakeholder involvement, focused field studies, formalized impact evaluations and mitigation development, responses to administrative draft comments, a public review draft EIS/EIR, public hearings on the Draft document, responses to public comments, finalized impact and mitigation statements, the final EISEIR, findings and decision documents, a mitigation and monitoring plan, and selection of the preferred project.

Reclamation will be the lead agency under NEPA, and the TCCA will be the lead agency under CEQA

Deliverables: Administrative, public review draft, and final EIS/EIR.

Task 5, Permit Initiation

TCCA seeks \$100,000 in funding to initiate and complete this task. This work would be undertaken toward the end of Phase II, after the preferred project has been identified. Permitting efforts will be initiated with the appropriate agencies. It is anticipated that this task will include 5 to 10 coordination meetings with agency personnel. Permits and approvals may be required by the following agencies:

- U.S. Army Corps of Engineers (404/Section 10 Permit)
- CDFG (Streambed Alteration Agreement/CESA compliance)
- NMFS (ESA compliance)
- USFWS (ESA compliance)

- State Lands Commission (Lease Across State Submerged Lands)
- Regional Water Quality Control Board (Waste Discharge Requirements/Stormwater)
- State Reclamation Board (Encroachment Permit)
- City of Red Bluff and Tehama County (conditional use permit)
- Federal Emergency Management Agency (Letter of Map Revision – floodplain encroachment)

Deliverables: Permit application documentation

Task 6, Implementation Plan Refinement

Under this proposal, which incorporates the requested change in scope for Phase II, \$10,000 of funds that have already been received would be used to develop a list of implementation tasks and identify their interrelationships. This proposal seeks an addition \$30,000 in funding for Task 6 that will be used to finalize an implementation plan for the preferred alternative. The preliminary implementation plan developed in the Phase I provides the starting point for developing the plan. The final implementation plan will include potential project financing mechanisms, an implementation schedule, permitting information and responsibilities, and the project monitoring and data evaluation plan.

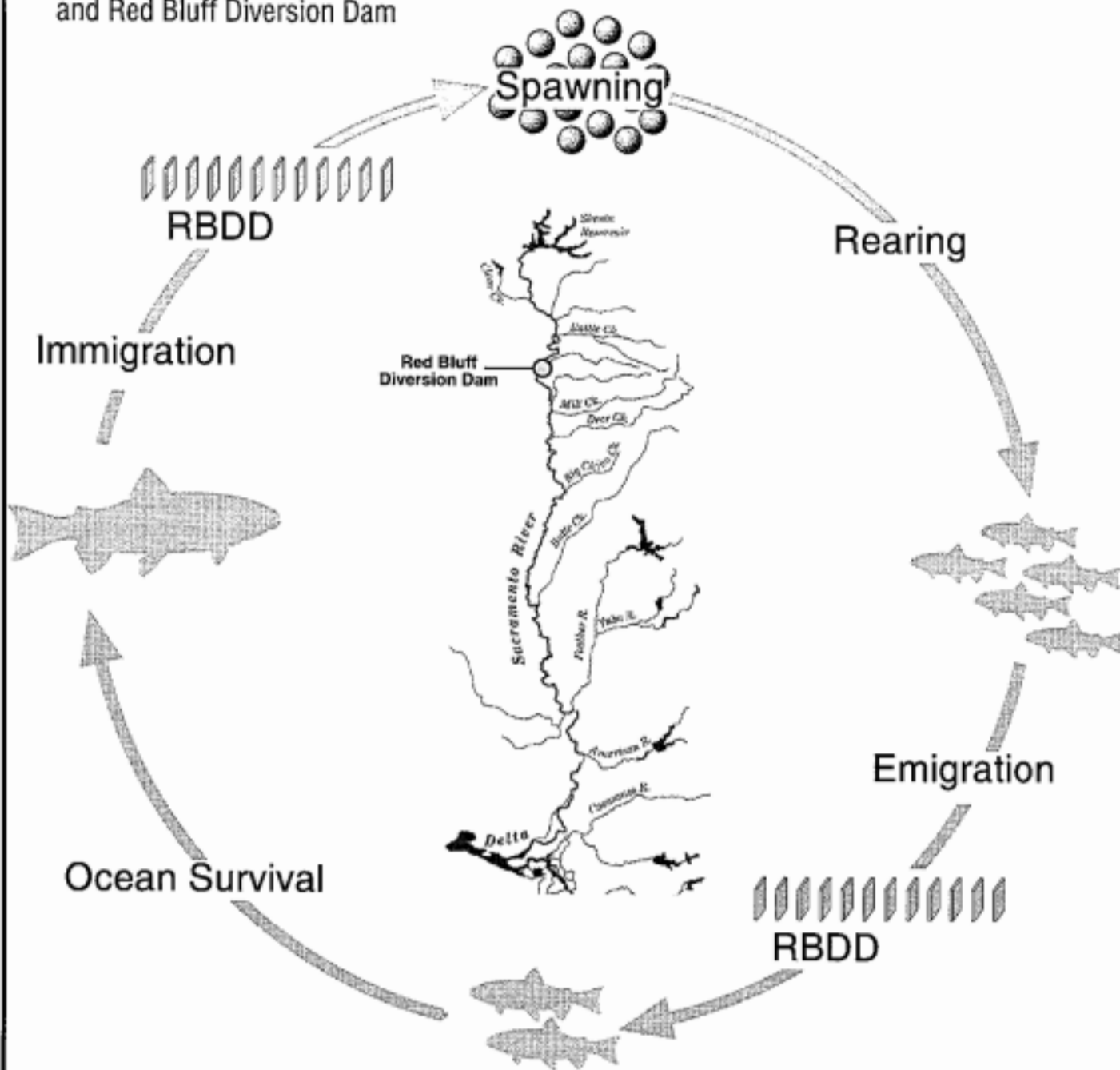
Deliverable: Project Implementation Plan

Task 7, Project Management

Under this proposal, which assumes approval by the Ecosystem Roundtable of the requested change in scope, \$90,000 of funds that have already been received will be used to continue ongoing project management activities. This proposal seeks an additional \$144,000 to fund project management through the completion of Phase II. The project management task includes developing project instructions, work plan, schedule, staff resource plan, and budgets; monitoring the schedule, expenditures, and work progress; invoicing for work completed; preparing project status reports; and ongoing communications with participating agencies.

Deliverables: Work plan, including project instructions, schedule, staff resource plan and budgets; quarterly progress reports and final report to CALFED agencies as specified in the PSP.

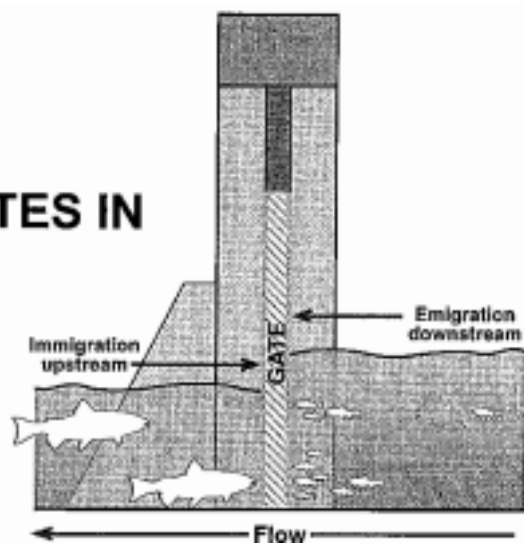
More than 75 percent of naturally spawning Chinook Salmon in the Sacramento River spawn in the reach between Keswick and Red Bluff Diversion Dam



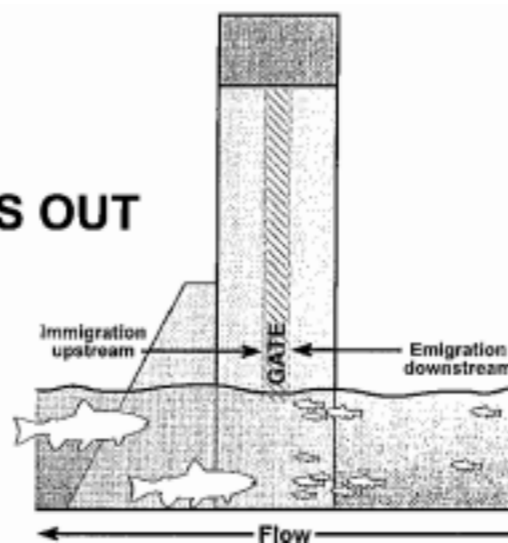
Existing operation at Red Bluff Diversion Dam creates an impediment to salmon migration in the Sacramento Basin

FIGURE 2
CONCEPTUAL MODEL
OVERALL PROJECT
TEHAMA-COLUSA CANAL AUTHORITY

GATES IN



GATES OUT



PURPOSE

Substantially improve the Red Bluff Diversion Dam

EXISTING CONDITION

- Unimpeded passage 8 months per year
- Inefficient ladders at some flows
- Screened capacity (gravity/pumping) 2,500/400 cfs

ALTERNATIVE 1

- Unimpeded passage 8 months per year
- Improved ladders designed for May-September flows
- Screened capacity (gravity/pumping) 2,500/1,300 cfs

ALTERNATIVE 2

- Unimpeded passage 10 months per year
- Improved ladders designed for July-August flows
- Screened capacity (gravity/pumping) 2,500/1,600 cfs

ALTERNATIVE 3

- Unimpeded passage year round
- No ladders required
- Screened capacity (gravity/pumping) 0/2,500 cfs

Substantially improve the water supply reliability at the Red Bluff Diversion Dam

- Gravity diversion capacity 2,500 cfs
- Pumping diversion capacity 400 cfs

- Gravity diversion capacity 2,500 cfs
- Pumping diversion capacity 1,300 cfs (900 cfs added)

- Gravity diversion capacity 2,500 cfs
- Pumping diversion capacity 1,600 cfs (1,200 cfs added)

- Gravity diversion capacity 0 cfs
- Pumping diversion capacity 2,500 cfs (2,100 cfs added)

FIGURE 3
CONCEPTUAL MODEL PHASE II
TEHAMA-COLUSACANALAUTHORITY

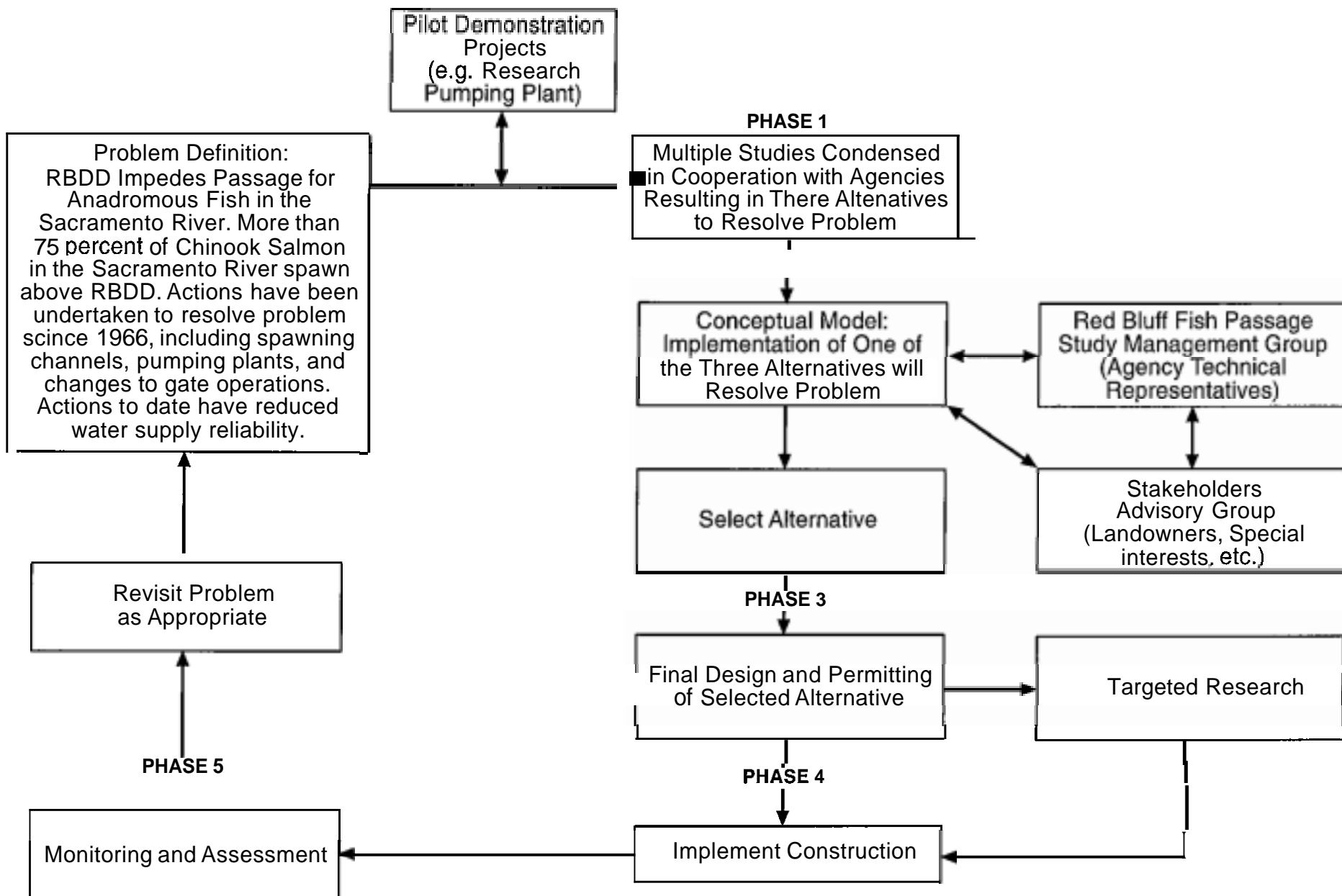


FIGURE 4
TCCA ADAPTIVE MANAGEMENT MODEL
TEHAMA-COLUSACANALAUTHORITY

FIGURE 5
TEHAMA-COLUSA CANAL
AUTHORITY AND DISTRICTS SERVED
 TEHAMA-COLUSA CANAL AUTHORITY

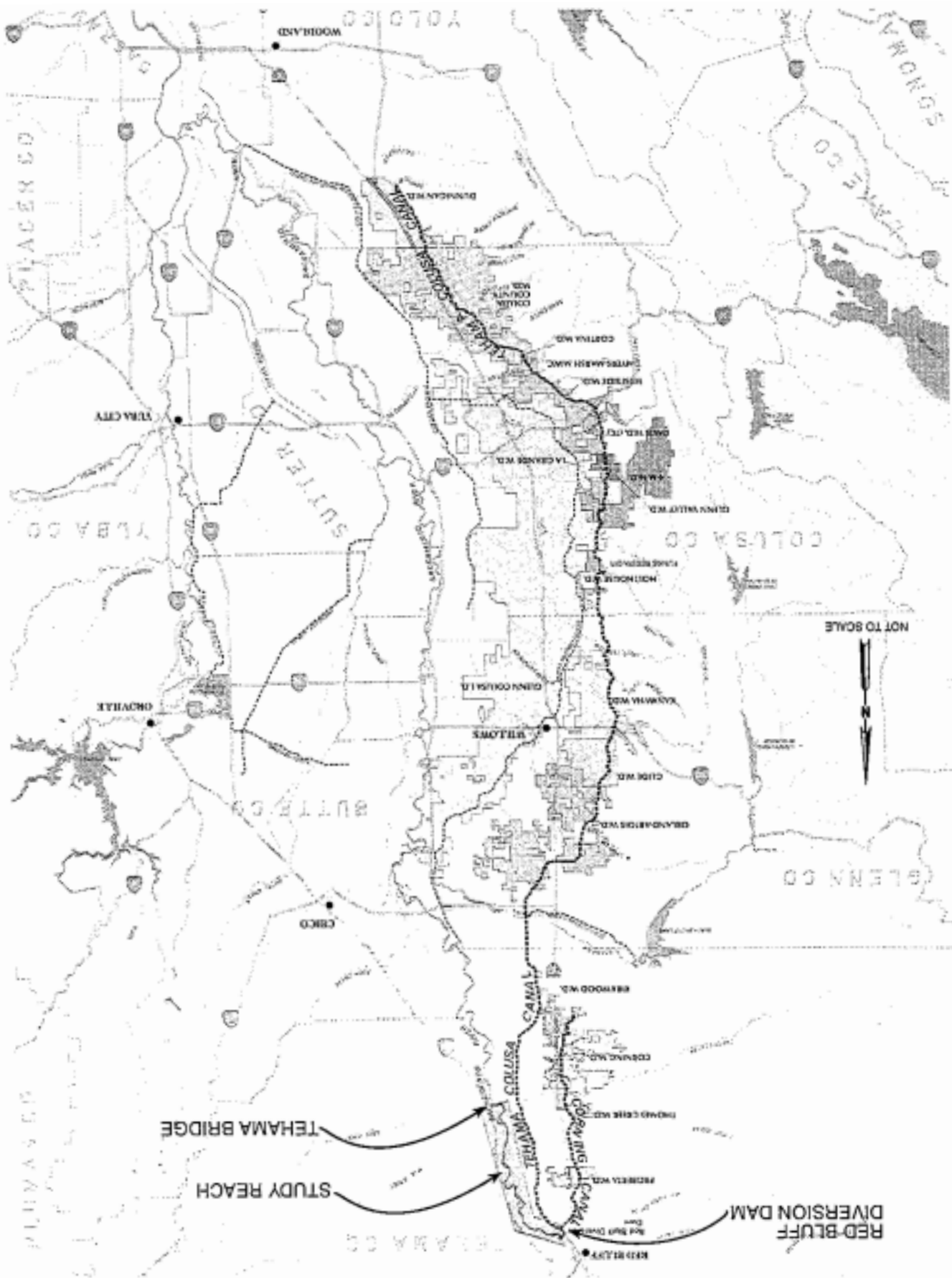




FIGURE 6
AERIAL PHOTO OF RBDD
TEHAMA-COLUSA CANAL AUTHORITY

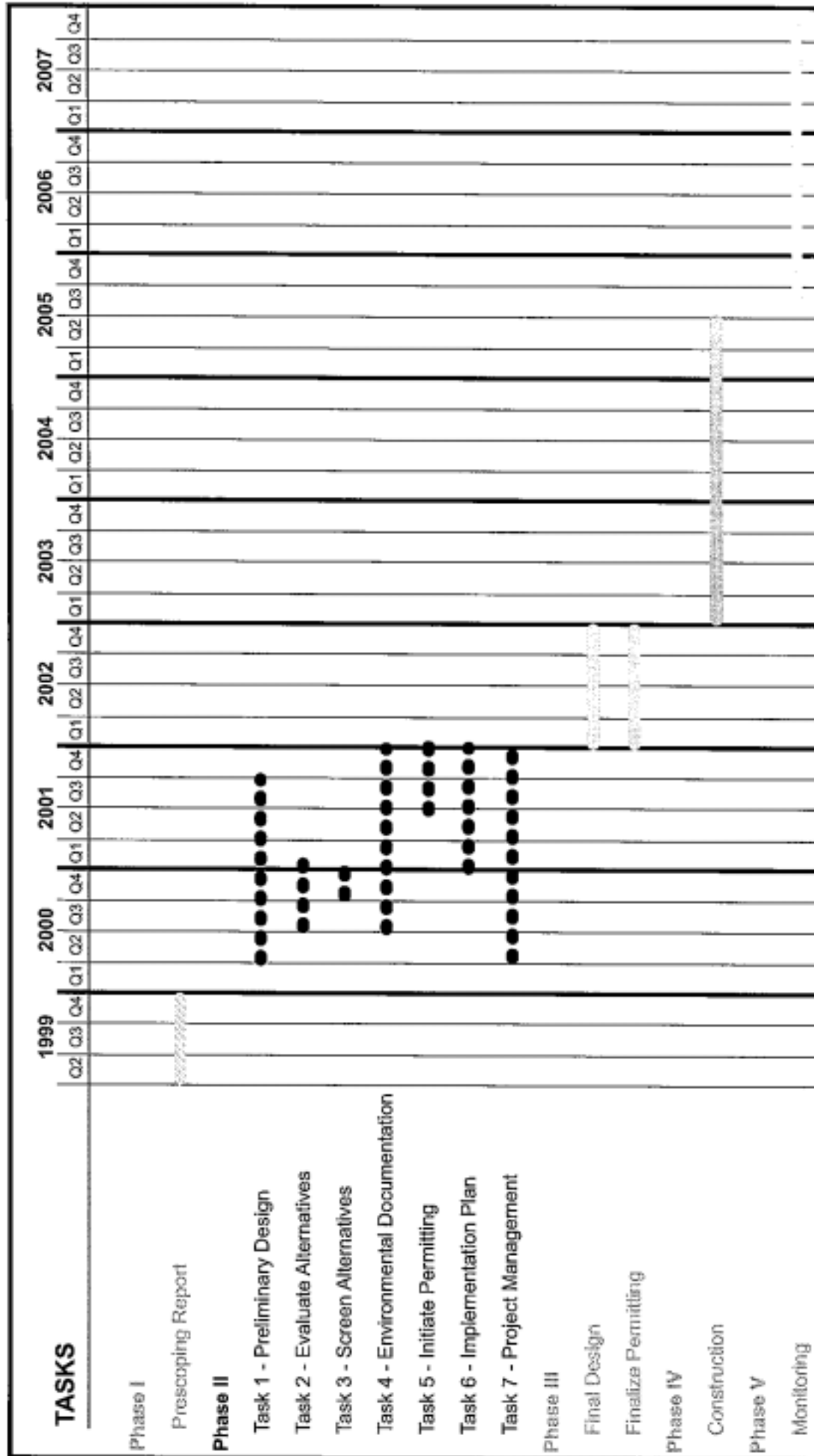


FIGURE 7
PROJECT TIMELINE
 TEHAMA-COLUSA CANAL AUTHORITY

Applicability to CALFED ERP Goals and CVPIA

ERP Goals and CVPIA Priorities

The project is linked directly to CALFED ecological restoration targets and programmatic actions identified in the CALFED ERPP (Volume II, 1999a, page 190). Specifically, this project will address Target 1: “Minimize survival problems for adult and juvenile anadromous fish at RBDD by permanently raising the gates during the non-irrigation season and improving passage facilities during the irrigation season” and Programmatic Action 1A: “Upgrade fish passage facilities at the RBDD.” Additionally, the project supports the CALFED non-ecological objective of providing a more reliable water supply for agriculture and other beneficial uses, such as wildlife refuges. Regarding legal obligations and agency mandates, the project will assist Reclamation in meeting its contractual obligations to supply water to the 17 water districts receiving service from the T-C and Coming canals.

In the Winter-run Salmon Recovery Plan, Objective 2 of Goal II calls for developing and implementing a permanent remedy at RBDD that improves passage for juvenile (and adult) winter-run chinook through the Red Bluff area, while minimizing losses of juveniles at diversion and fish bypass facilities. The proposed project will identify and develop alternatives that have the ability to meet this Goal and Objective. Furthermore, Section 3406(b)(10) of the Central Valley Project Improvement Act requires the Secretary of the Interior to develop and implement measures to minimize fish passage problems for adult and juvenile anadromous fish at the RBDD (NMFS, 1997). The objective of the proposed project is to develop and evaluate measures that would reduce or eliminate the dependence of agricultural irrigation on the operations of RBDD. Stressors that the project addresses are focused on barriers or delays to migration and associated predation at the RBDD. Project facilities, including any screened intakes, will meet all current fisheries agencies’ requirements and result in reduced dependence on current RBDD operations to draw water into the TCCA canal system. Species that will benefit within the Keswick to RBDD Ecological Management Unit are listed in the ERPP (Volume II, 1999a, pages 167-168).

Relationship to Other Ecosystem Restoration Projects

The resource agencies have been seeking solutions to fish passage problems at the RBDD for more than 20 years. Other ongoing projects and programs that these efforts, including the currently proposed project, are linked to include CALFED Bay-Delta Program, Biological Opinion for Operation of the RBDD, RBDD Research Pumping Plant testing and evaluation program, RBDD Long-term Fish Passage Program, Draft Winter-run Salmon Recovery Plan, Central Valley Project Improvement Act (CVPIA) through the Anadromous Fish Restoration Program (AFRP), and the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act of 1988. The proposed project will explore the feasibility of incorporating facilities of the RBDD Research Pumping Plant. The Red Bluff Fish Passage Study Management Group, which includes representatives of Reclamation, USFWS, NMFS, CDFG, DWR, and TCCA, will provide project input as part of their ongoing efforts.

Requests for Next-phase Funding

This project is a continuing project that has received previous CALFED funding. See the Appendix for a

detailed explanation of the project funding status and accomplishments to date

Previous Recipients of CALFED or CVPIA Funding

This proposal is for the balance of Phase II funding of the ongoing Fish Passage Improvement Project at the Red Bluff Diversion Dam, CALFED Tracking Number 99-B07. Work is currently proceeding on the funded Phase II tasks. Phase I, partly funded by a 1998 CALFED Category III grant, was a feasibility study that resulted in the Prescoping Report (CH2M HILL, 2000) cited elsewhere in this proposal.

System-wide Ecosystem Benefits

The primary biological/ecological benefits of the project are to reduce or minimize the impacts of the RBDD on upstream and downstream juvenile and adult anadromous fish migration. Reducing or eliminating the current dependence on the RBDD for agricultural irrigation supply will allow modified RBDD operations to improve fish passage for spring-run, fall-run, late-fall-run, and winter-run chinook salmon, splittail, sturgeon, and steelhead trout. This could also provide secondary benefits, such as reducing predation that occurs as a result of delays in migration at the RBDD, and better access by migrating salmonids to spawning gravel above the RBDD.

The project is needed to address various agency and legislative mandates and public concerns regarding fish passage issues at the RBDD and to improve the reliability of water deliveries to TCCA's agricultural customers. The project would potentially provide third-party benefits, such as better enabling state and federal agencies to pursue the Stony Creek Enhancement Project and other water management options.

Volume II of the CALFED ERPP (1999a, Page 165) states that more than 75 percent of naturally spawning chinook salmon use the Sacramento River reach between the RBDD and Keswick Dam. Correcting fish passage problems at the RBDD would allow maximum use of available spawning habitat in the upper watershed. The project is of vital importance to projects already underway, such as the Battle Creek restoration projects.

From Shasta Dam to the Delta, tremendous efforts have been made in the past 10 years by the state and federal resource agencies, Reclamation, water diverters, and others to improve habitat, water temperature, and fish passage, with mixed results. Improving upstream and downstream fish passage at the new or modified TCCA diversion facilities will maximize use of fish habitat in the Sacramento River system will help achieve the maximum benefits of both the previously completed and ongoing fish protection projects along the Sacramento River.

The project will provide more reliable backup supplies to the Glenn-Colusa Irrigation District (GCID) canal system and to the three national wildlife refuges (Sacramento, Delevan, and Colusa) served by GCID. The project could also provide fish flows through the Constant-head Orifice (CHO) on the T-C Canal into Stony Creek and supply fish enhancement flows at other creek crossings along the T-C and Coming canals.

Qualifications

The TCCA is a joint powers authority of 15 water districts. TCCA has a 25-year contract with Reclamation to operate and maintain the T-C and Coming canals. The Authority's annual budget is more than \$2 million, and it delivers more than 250,000 acre-feet per year of water to 150,000 acres of farmland. TCCA partners with Reclamation to operate the RBDD and related facilities to address fisheries issues associated with the RBDD. The TCCA also participates in public forums and technical groups on RBDD fisheries research, and has significantly contributed to efforts to resolve RBDD fisheries issues. The TCCA administers research and planning efforts and implements capital improvements for water supply, water delivery, and fisheries.

CH2M HILL, one of the largest U.S. firms providing comprehensive engineering, scientific, economic, and planning expertise for large-scale, complex fishery and water resources projects, has been involved in this project since its inception. TCCA selected CH2M HILL as a subcontractor for its experience in water resources engineering and planning in California and TCCA's positive experience with the firm. CH2M HILL has served Reclamation, DWR, and numerous northern California water and irrigation districts for more than 50 years and has designed many Sacramento River intakes, pump stations, fish screens, and other water resources and fisheries management facilities.

Staff Organization and Key Project Personnel

As shown on the organization chart, Figure 8, TCCA General Manager, **Art Bullock**, will administer the project with the assistance of TCCA staff. The CH2M HILL consultant team will provide engineering, planning, scientific, and economic expertise from **Dale Cannon, P.E.**, **Howard Wilson, P.E.**, **Mike Urkov, P.E.**, **Bob Gatton, P.E.**, **John Crowe, P.E.**, and **Ken Iceman, P.E.**

Art Bullock, P.E., TCCA General Manager and Project Administrator

Registered Professional Engineer: California, Nevada, Oregon

Art Bullock has 30 years of experience in the California public water supply industry, holding management positions in four separate Southern California water districts before joining the TCCA. He served as General Manager and Chief Engineer of two of these districts prior to becoming TCCA General Manager and Chief Engineer in January 1996. Mr. Bullock has extensive experience in report preparation and administering large research and construction projects.

Dale Cannon, P.E., Consultant Team Project Manager

B.S., Civil Engineering; Registered Professional Engineer: Oregon

Dale Cannon has more than 32 years of engineering experience in large-scale water resources projects. He has expertise in project design and management, quality control, construction contract administration, staff direction, client and regulatory agency liaison, capital improvements financing, and grants administration. He recently managed the flood damage assessment and repairs of the Upper Butte Creek levee system for the U.S. Army Corps of Engineers. He is currently developing conceptual designs for U.S. EPA facilities to prevent contaminated wastes from the Iron Mountain Mine Superfund site near Redding from reaching the Sacramento River.

Howard Wilson, P.E., Senior Reviewer

B.S., Civil Engineering; Registered Professional Engineer: California, Nevada, Washington

Howard Wilson, has more than 30 years of experience in agricultural irrigation systems, pumping, and fish protection facilities. He managed the design of a \$20 million rehabilitation and upgrade project for Glenn-Colusa Irrigation District (GCID), including a new Sacramento River intake and 3,000-cfs main pump station. He managed feasibility studies, design, and construction of the interim fish screens and design of the permanent screen facilities at the GCID main pump station. He was senior consultant for the Reclamation District 108 800-cfs Wilkins Slough Positive Barrier Fish Screen project.

Mike Urkov, Environmental and Permitting Issues

M.A., Water Resources Administration; B.S., Political Economy of Natural Resources

Mike Urkov is a water resources specialist with expertise in NEPNCEQA and experience in coordinating with federal and state agencies to acquire permits and approvals. He managed environmental and permitting tasks for the Anderson-Cottonwood Irrigation District's Sacramento River Fish Passage Improvement Project involving a new fish screen and ladders. He provided environmental and permitting support for Glenn-Colusa Irrigation District's 3,000-cfs Sacramento River fish screen project and USBR's Refuge Water Supply Conveyance Project involving weirs, diversions dams, canals, and pipelines..

John Crowe, P.E., Pump Station Concepts

B.S., Mechanical Engineering; Registered Professional Engineer: California, Alaska

John Crowe has 29 years experience designing structures and mechanical systems in rivers. For the Chalk Bluff Water Treatment Plant in Reno, Nevada, he managed design of the 80-mgd Truckee River pump station, screened intake, 2,700 feet of 48-inch pipeline, and 3,300-hp treated water pump station at the plant. He also managed preliminary design of the M&T Ranch Sacramento River pump station.

Ken Iceman, P.E., Lead Project Engineer/Hydrology/Hydraulics

B.S., Mathematics; M.S., Civil Engineering; Registered Civil Engineer: California

Ken Iceman has more than 27 years of hydrology and hydraulics experience. He managed the hydraulic monitoring program for GCID interim fish screen performance, designed the training wall and bypass channel system, and managed the GCID permanent fish screen and Sacramento River gradient restoration feasibility study. He provided hydraulic modeling, optimized screen hydraulics, and maximized anadromous fish protection for RD-108's Sacramento River positive barrier fish screen.

Bob Gatton, P.E., Fish Screen Design Concepts

M.S., B.S., Civil Engineering; M.S., Systems Management; Registered Professional Engineer: Washington

Bob Gatton specializes in designing fish screening, passage, and hatchery facilities. He is a design consultant for the GCID and RD-108 fish screening facilities on the Sacramento River. For the Rocky Reach Dam and Hydroelectric Facility on the Columbia River, he managed conceptual design, layout, equipment selection, and agency coordination for the construction 2,000 cfs and 5,000 cfs ganged screens and other fish protection facilities to pass more than 1 million fish around the dam, meeting a 10-week construction schedule to avoid disrupting fish outmigration and power service.

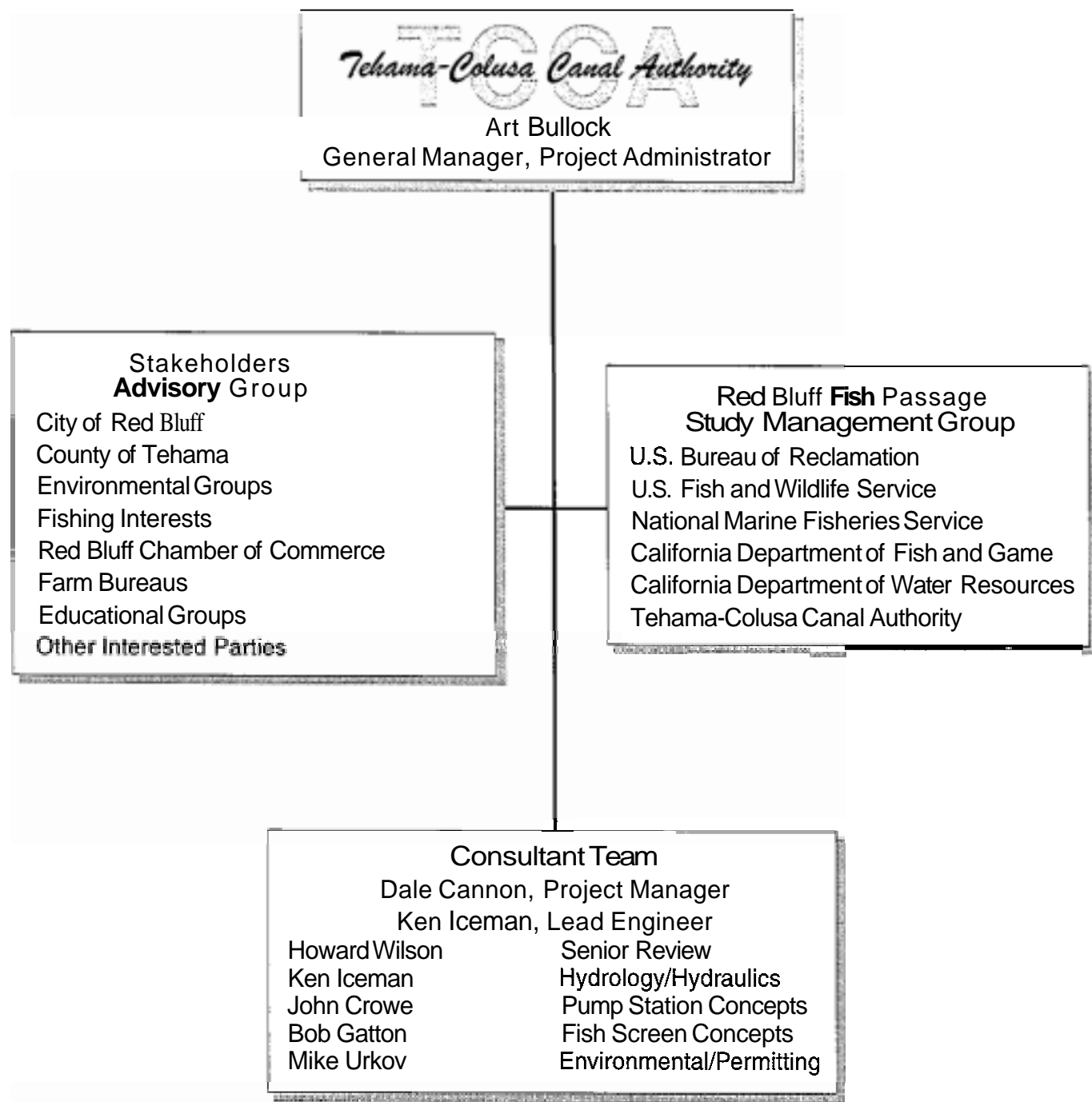


FIGURE 8
PHASE II PROJECT
TEAM ORGANIZATION
TEHAMA-COLUSA CANAL AUTHOR

cost

Table 2 below shows total requested funding from CALFED for the balance of Phase II funds for the project. As noted under the description of Task 7, Project Management will include developing project instructions, work plan, schedule, staff resource plan, budgets, monitoring of the schedule, invoicing work completed, and preparing ongoing communications with participating agencies. These efforts will require approximately equal levels of effort. **For this proposal, Project Management will include coordination between environmental and design efforts, pursuant to the change of scope discussed earlier in this proposal.** Not included in Table 2 are TCCA's costs to administer the project, costs it will incur for project participation, and costs incurred to administer consultant services through a direct contract to TCCA. For Phase II, these costs, including overhead and materials costs, total \$139,000.

Cost-sharing

The labor costs associated with TCCA's administration of Phase II of the project, totaling \$120,000, will be assumed by TCCA and are not included in the amount requested from CALFED. These costs, along with associated overhead and materials costs, constitute TCCA's \$139,000 direct cost-sharing contribution to the project.

When the project is completed, TCCA will provide operation and maintenance (O&M) services for any new facilities constructed in conjunction with the project. These services will constitute an additional, significant cost-sharing element for TCCA.

The member resource agencies that comprise the SMG have shared in the cost of project-related activities to date and indicated the willingness to continue their participation through subsequent phases of the project. Their participation represents a significant continuing financial contribution to achieving the goals of the project.

It is anticipated that the USFWS and CDFG will continue existing monitoring programs, including hydraulic monitoring, radio-telemetry, video and observational ladder counting, aerial redd counts, carcass surveys, juvenile beach seining and push netting, fyke netting, and screw trapping. These programs will provide critical comparative "before and after" data on the fish passage benefits of the project.

Budget Breakdown- CALFED Funds

		Subject to Overhead						Exempt from Overhead			
		Direct Labor Hours	Salary (\$)	Benefits (\$)	Travel (\$)	Supplies and Expendables (\$)	Service Contracts (\$)	Overhead (show % here)	Equipment (\$)	Graduate Student Fee Remission (\$)	Total Cost (\$)
2001	Task 1						550,000				550,000
	Task 2						Previously funded				
	Task 3						Previously funded				
	Task 4						750,000				750,000
	Task 5						100,000				100,000
	Task 6						30,000				30,000
	Task 7						144,000				144,000
Total Cost Year 2001			0	0	0	0	1,574,000	0%	0	0	1,574,000
Total Project Cost			0	0	0	0	1,574,000	\$0	0	0	1,574,000
	Task 1 Preliminary Design										
	Task 2 Evaluate Alternatives										
	Task 3 Screen Alternatives										
	Task 4 Environmental Documentation										
	Task 5 Initiate Permitting										
	Task 6 Implementation Plan										
	Task 7 Project Management										

Local Involvement

Local Government Coordination

The Tehama County Board of Supervisors and Planning Department and Red Bluff City Council and Planning Department were provided with the proposal (see attached letters). TCCA staff have discussed the project with the Red Bluff City Council and City Manager and the Tehama County water resources director. A discussion of the project with the Board of Supervisors is scheduled for May 24, 2000.

Local Interest Group/Affected Parties Awareness

Several workshops have been held by the Red Bluff Fish Passage Study Management Group (SMG) to review the goals and objectives of the project. Participating in these workshops were TCCA, Reclamation, USFWS, CDFG, DWR, and NMFS. All SMG participating agencies expressed support for project goals and objectives and a willingness to work with TCCA to develop an implementable solution. Additionally, TCCA has presented the project to the Tehama County Farm Bureau and the City of Red Bluff Chamber of Commerce. TCCA is forming a Stakeholders Advisory Group consisting of the City of Red Bluff, County of Tehama, environmental groups, fishing interests, Red Bluff Chamber of Commerce, farm bureaus, educational groups, and other interested parties. There has been press coverage of the project in Red Bluff newspapers. The Sacramento River Discovery Center, a private, non-profit organization dedicated to public information and education regarding the Sacramento River watershed, has written a letter of support for the project (attached). No opposition to the project has been expressed by any party to the project objectives or the technical work performed to date. Letters of permission for access from two potentially affected landowners are attached, and additional permission letters will be obtained as alternative sites are identified.

Public Outreach Plan

A public awareness effort is currently underway through presentations and press coverage, as noted above. This effort will be expanded as Phase II proceeds. Affected and interested parties will be notified through the local media, as well as through the public notification and involvement requirements of NEPA and CEQA. New and innovative public notification media, such as a project web page, will be considered. Under Task 3, identification of potential alternatives and selection of a preferred alternative(s) will involve stakeholders' meetings intended to achieve consensus on a preferred alternative.

Potential Third Party Impacts/Benefits

Because the project will provide a more reliable water supply for agriculture and other beneficial uses, including wildlife refuge water supplies, the project will benefit agricultural water users in Tehama, Glenn, Colusa, and Yolo counties who receive their water from the TCCA and from districts served by the TCCA. All third parties interested in restoring anadromous fish species in the Sacramento River and Bay-Delta systems will benefit. Additionally, the project could enable state and federal agencies to pursue stream enhancement projects and other water management options in the northern Sacramento Valley.

Compliance with Standard Terms and Conditions

TCCA will comply with all standard terms and conditions as presented in the PSP.

Literature Cited

- CALFED. 1999a. Revised Draft *Ecosystem Restoration Program Plan, Volume II: Ecological Management Zone Visions*. February.
- CALFED. 1999b. Revised Draft *Strategic Plan for Ecosystem Restoration*. February.
- CH2M HILL. 2000. *Prescoping Report: Tehama-Colusa Canal Authority Fish Passage Improvement Project at the Red Bluff Diversion Dam*. January.
- National Marine Fisheries Service. 1993. *Biological Opinion on the Effects of the Bureau of Reclamation's Proposed Long-Term Operation of the Central Valley Project on Sacramento River Winter-run Chinook Salmon*. February.
- National Marine Fisheries Service (NMFS). 1997. *Proposed Recovery Plan for the Sacramento River Winter-run Chinook Salmon*.
- U.S. Bureau of Reclamation. 1992. *Appraisal Report, Red Bluff Diversion Dam, Fish Passage Program*. U.S. Department of the Interior, Bureau of Reclamation, Mid-Pacific Region, Sacramento, California. February.
- U. S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office; U.S. Bureau of Reclamation, Mid-Pacific Region. 1998. *Red Bluff Diversion Dam and the Tehama-Colusa Canal, Supplemental Fish and Wildlife Coordination Act Report*. February.

Threshold Requirements

Letters of Notification

Environmental Compliance Checklist

Land Use Checklist

Contract Forms. .

Transmittal Letters to Local Agencies

Tehama-Colusa Canal Authority

Officers:

Robert Harper
Chairman

Ken LaGrande
Vice Chairman

Janice Jennings
Secretary/Treasurer

Arthur R. Bullock
General Manager
& Chief Engineer

May 2, 2000

Member Agencies:

Directors:

Colusa County Water District
Douglas Griffin

Coming Water District
Barbara Paxon-Sichel

Cortina Water District
Fritz Grimmer

Davis Water District
Tom Charter

Dunnigan Water District
Tom Mumma

East Water District
Marion C. Mathis

Glenn-Colusa Irrigation District
Sandy Denn

Glide Water District
Norman Michael

Kanawha Water District
Ronald W. Vickers

Kirkwood Water District
Larry Brockman

LaGrande Water District
Ken LaGrande

Orland-Artois Water District
John Enos

Proberta Water District
John Greten

Thomes Creek Water District
Robert Williams

Westside Water District
Robert Harper

Red Bluff City Council
City Hall
555 Washington
Red Bluff, CA 96080

Re: TCCA Study at the Red Bluff Diversion Dam

Ladies and Gentlemen:

As we have discussed before, because of fish passage problems, the Tehama-Colusa Canal Authority (TCCA) has watched the reliability of its water supply from the Red Bluff Diversion Dam fade into annual uncertainty. A decade ago the dam gates were in the Sacramento River year around and water flowed into the Tehama-Colusa and the Coming Canals whenever it was needed. Today the gates are in the River only 4 months out of the year and water needed by our 17 water districts at any other time of the year must be pumped through a system of temporary and experimental pumps which can, at best, deliver only 40% of the water we need. Shortages and restricted deliveries are now common and create extreme hardships on our farmers. To make the situation worse, there are currently two separate proposals being advanced by the resources agencies to keep the dam gates out for an additional 45 days in Spring and 15 days in the Fall to further enhance fish passage by the dam. If implemented, this would result in only 2 months of "gates in" operation each year and would devastate our entire 150,000 acre service area.

In an effort to increase the reliability of the water delivery system for the two Canals, the TCCA applied for and received grant funding from CALFED to conduct a Feasibility Study of methods under which we could reduce our reliance on the Red Bluff Diversion Dam (in its present operation) for water delivery and, correspondingly, enhance fish passage at the dam. This Study was completed in 1999 and the three most feasible alternatives were identified. Copies of the Study were provided to you at that time but additional copies are available at your request.

5513 Highway 162
P.O. Box 1025
Willows, CA 95988

Phone: (530) 934-2125
Fax: (530) 934-2355
mail: tcwaterman@aol.com

Red Bluff City Council
May 2, 2000
Page 2.

Approximately one year ago we advised you that the Tehama-Colusa Canal Authority (TCCA) was preparing an application for CALFED funding in the amount of \$2.574 million to move ~~our~~ feasibility study to the next level - that being Preliminary Engineering Design of the feasible alternatives and Environmental Review and Documentation. Partial funding in the amount of \$1 million was granted to start the work on the Preliminary Engineering Design of the alternatives and we have just received authority to proceed with the work. We are now returning to CALFED for the remaining funding ~~of~~ \$1.574 million for the Environmental Review and Documentation. A copy of our latest funding request to CALFED is included for your information.

We are pleased that you have designated Councilmember Sale and City Manager Harvey as City representative and alternate representative, respectively, to work with us in the development of this Project and we ~~will~~ be scheduling a workshop meeting in the near future. In the meantime, if you have any questions, please contact ~~At~~ Bullock, our General Manager, at the letterhead address or by phone at (530) 934-2125.

Sincerely,

Robert Harper, Chairman
TCCA Board of Directors

by



Arthur R. Bullock
General Manager & Chief Engineer

Encl: May 15, 2000 Funding Proposal

CC: City Clerk
City of Red Bluff Planning Department

Tehama-Colusa Canal Authority

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Dunnigan Water District
Tom Morrison

4-M Water District
Marion C. Mathis

Glenn-Colusa Irrigation District
Sandy Denn

Glide Water District
Norval Michael

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Phone: (530) 934-2125
Fax: (530) 934-2355
Mail: tcwaterman@aol.com

May 2, 2000

Tehama County Board of Supervisors
County Courthouse
P.O. Box 250
Red Bluff, CA 96080

Re: TCCA Study at the Red Bluff Diversion Dam

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Tehama County Board of Supervisors
May 2,2000
Page 2.

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We look forward to meeting with you on May 23,2000 to discuss this project and at that time will request that you designate a representative to work with **us** in an advisory capacity. In the meantime, if you have any questions, please contact *Art* Bullock, our General Manager, at the letterhead address or by phone at (530) 934-2125.

Sincerely,

Robert Harper, Chairman
TCCA Board of Directors

by



Arthur R. Bullock
General Manager & Chief Engineer

Encl. May 15,2000 Funding Proposal

CC: County Clerk
Tehama County Planning Department

Letters of Permission for Access

**TEHAMA-COLUSA CANAL AUTHORITY
FISH PASSAGE IMPROVEMENT PROJECT
AT THE RED BLUFF DIVERSION DAM**

**RIGHT OF ENTRY FOR PURPOSES OF PERFORMING FIELD INSPECTIONS
AND SURVEYS**

Tehama-Colusa **Canal** Authority
Post Office Box 1025, 5513 Highway 162
Willows, California 95988

Tehama County Assessor Parcel No. 035-470-09

Permission is hereby granted to the Tehama-Colusa **Canal** Authority (TCCA), its contractors, employees and assigns, as of April 1, 2000, to enter upon the lands held by PACTIV Corporation, identified by the Tehama County Assessor Parcel Number shown above. **This** Right of Entry will terminate December 31, 2001, or upon completion of work covered by **this** Agreement, whichever comes first.

TCCA use **will** be scheduled so **as** to not interfere with PACTIV's plant and warehouse operations upon the lands.

This Right of Entry authorizes possible inspection and survey **work as** outlined below:

- ❖ **Property and Control Surveys**
 - Work could include recovering and measuring boundary monumentation that has been previously set. This work would start immediately **after right-of-entry is** obtained.
- ❖ **Setting Targets for Aerial Mapping**
 - **Work** could include ground surveyors setting and measuring flight control crosses for aerial mapping. This work would be done shortly after right-of-entry is obtained. The targets would be white sheets or plywood. **Once** the aerial photographs are taken the targets will be removed.
- ❖ **Habitat/vegetation Verification**
 - The work would consist of **site** observations. This will require access to and walking through property to verify **habitat/vegetation** species. Photographs may be taken to document observations. This work is anticipated to be done in the spring of 2000.
- ❖ **Soils Exploration**
 - Depending **on** initial reviews, it may be **necessary** to excavate drill holes or pot holes using a backhoe to determine the subsurface soil conditions. Specific locations for test **holes** and **access** to the test holes can be reviewed with the property owner or manager prior to doing **any** work. **Access** would be needed for **truck** mounted drilling rig and **field** personnel to conduct borings. The depth of borings would need to be determined later but would likely be **thirty** feet or greater. Samples would be taken to determine **soil** characteristics. Bore holes would be no more **than** twelve inches in diameter and would be backfilled **upon** completion of the sampling and logging.
- ❖ **Site Visitations**
 - Site visits would be required during the **course** of the work to observe and verify **field** conditions. Photographs would be **taken**.

Tehama-Colusa ~~Canal~~ **Authority** agrees to hold PACTIV Corporation, its agents and employees, harmless ~~from~~ any liability for damages to **persons** or property, direct *or* indirect, which results from activities undertaken pursuant to this agreement; except that **PACTIV Corporation, its agents** or employees **shall** not be held harmless for losses or damages resulting from **its** own willful misconduct or **gross** negligence.

Grantor: PACTIV Corporation

By: Paul P. King
VICE PRESIDENT
Title

Dated: 3/29/00

Accepted:

Tehama-Colusa Canal Authority

By: _____

Dated: _____

Arthur R. Bullock
General Manager, Chief Engineer

**TEHAMA-COLUSA CANAL AUTHORITY
FISH PASSAGE IMPROVEMENT PROJECT
AT THE RED BLUFF DIVERSION DAM**

**RIGHT OF ENTRY FOR PURPOSES OF PERFORMING FIELD INSPECTIONS AND
SURVEYS**

Tehama-Colusa Canal Authority
Post Office **Box** 1025,5513 Highway 162
Willows, California 95988

Tehama County Assessor Parcel No. 035-470-14

Permission is hereby granted to the Tehama-Colusa Canal Authority (TCCA), its contractors, employees and assigns; as of 3-08, 2000, to enter upon the lands held by Meyers Motels, identified by the Tehama County Assessor Parcel Number shown above. This Right of Entry will terminate December 31, 2001, or upon completion of work, whichever comes first.

This Right of Entry authorizes possible inspection and survey work as outlined below:

❖ **Property and Control Surveys**

- 9 Work could include recovering and measuring boundary monumentation that has been previously set. ~~This~~ work would start immediately after right-of-entry is obtained.

❖ **Setting Targets for Aerial Mapping**

- Work could include ground surveyors setting and measuring flight control crosses for aerial mapping. This work would be done shortly after right-of-entry is obtained. The targets would be white sheets or plywood. Once the aerial photographs are taken the targets will be removed.

❖ **Habitat/vegetation Verification**

- 9 The work would consist of site observations. This will require access ~~to~~ and walking through property to verify habitat/vegetation species. Photographs may be taken to document observations. This work is anticipated to be done ~~in~~ the spring of 2000.

❖ **Soils Exploration**

- 9 Depending on initial reviews, it may be necessary to excavate drill holes or pot holes using a backhoe to determine the subsurface soil conditions. Specific locations for test holes and access to the test holes can be reviewed ~~with~~ the property owner or manager prior to doing any work. Access would be needed for truck mounted drilling rig and field personnel to conduct borings. The depth of borings would need to be determined later but would likely be thirty feet or greater. Samples would be taken to determine soil characteristics. Bore holes would be no more than twelve inches in diameter and would be backfilled upon completion of the sampling and logging.

❖ **Site Visitations**

- Site visits would be required during the course of the work to observe and verify field conditions. Photographs would be taken.

Tehama-Colusa ~~Canal~~ Authority agrees to hold Meyers Motels, its agents and employees, harmless from any liability for damages to persons or property, direct or indirect, which results from activities undertaken pursuant to this agreement; except that Meyers Motels, its agents or employees shall not be held harmless for losses or damages resulting from its own willful misconduct or gross negligence.

Grantor: Meyers Motels

By: 

Title

Dated: 3/08/00

Accepted:

Tehama-Colusa ~~Canal~~ Authority

By: _____

Arthur R. Bullock, General Manager,
Chief Engineer

Dated: _____

Letter of Support for Project



Cathy Klinesteker
Executive Director

P.O. Box 1298
Red Bluff, CA 96080

Phone: (530) 527-1196

Fax: (530) 527-1312

E-Mail: cklinest@tehama.k12.ca.us

Web Page: <http://www.srdc.tehama.k12.ca.us>

May 1, 2000

To Whom It May Concern:

This letter is written in support of and in partnership with the CALFED proposal by TCCA to improve fish passage and delivery of water for agriculture at the Red Bluff Diversion Dam. The Sacramento River Discovery Center (SRDC) has worked with TCCA's consultant, CH2MHill, for over four years on educational programs relating to the Sacramento River Watershed. The two proposals submitted to CALFED, one by CH2MHill and one by SRDC, will continue and expand this partnership.

The Sacramento River Discovery Center is a private, non-profit organization dedicated to public information and education, started with funding from the Central Valley Project Improvement Act, incorporated in September, 1995, with 316 members. Over forty-eight public and private groups participated actively to plan the vision and implement first steps for development of the Center. Many more have become partners in the continuing growth of that vision. The Discovery Center is located on 488 acres of public land managed jointly by Mendocino National Forest, U.S. Fish & Wildlife Service, and the U.S. Bureau of Reclamation adjacent to the Red Bluff Diversion Dam. It's history of bringing together diverse groups of people to provide a balanced view of the river has resulted in great strides toward development of the Center.

To date the accomplishments of the Sacramento River Discovery Center to build a foundation for strong educational programs include:

- A temporary modular building that is open to the general public six days a week. It hosts monthly evening programs, regularly scheduled events and is surrounded by a two acre native/drought tolerant plant garden established with extensive community and volunteer time and donations.
- School programs including day programs and overnight camping experiences with all activities tied to watershed education. Educational programs have served 16,847 students.

- 150 students have participated in the High School/College Natural Resource Academy.
- Teacher training program/curriculum materials for on-site day and camp visits for 128 teachers.
- The expansion of educational displays and programming with the support of the Bureau of Reclamation Water Conservation Education program.
- A total of 60,280 volunteer hours since opening in June, 1996.
- Over 20,000 visitors to date.

TCCA is proposing to complete a critical task related to the health of our watershed. They propose to work closely with the public, including the Sacramento River Discovery Center, to assure that the general populace understands and is included in the challenging decisions to be made concerning management of our water system. This will build long-term support for the work of management agencies, will connect communities to the work on the river and throughout the watershed, and will promote public/private partnerships to better accomplish the monumental task of managing the system to assure the healthiest world possible for future generations.

This kind of private industry/education partnership is exactly what we need to achieve the goal of leaving the best world we can for future generations. I enthusiastically recommend that you support this proposal.

Sincerely,

A handwritten signature in dark ink, reading "Cathy Klinesteker". The signature is written in a cursive, flowing style with a large initial "C".

Cathy Klinesteker

Environmental Compliance Checklist

Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

 X
YES

NO

2. If you answered yes to # 1, identify the lead governmental agency for CEQA/NEPA compliance.

TCCA-CEQA; U.S. Bureau of Reclamation-NEPA
Lead Agency

3. If you answered no to # 1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.
N/A

4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

Full NEPA/CEQA compliance will be accomplished as a primary part of the work proposed under this application. Final document and ROD are expected at completion of this phase.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

 X
YES

NO

If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

Written permission has been acquired from those property owners whose properties are most likely to be impacted from actions taken under the alternatives and is attached. Negotiations with other property owners who may be affected have been initiated. Additional access authorities will be pursued as work and/or the tasks are completed and areas requiring access are identified.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply. **Note: No permits will be required for the activities included under this Phase II proposal. However, the following permit applications will be submitted for subsequent phases of the project, per the scope outlined in this proposal.**
- LOCAL**
- | | | |
|--------------------------------------|-------------------------------------|--|
| Conditional use permit | <input checked="" type="checkbox"/> | |
| Variance | <input type="checkbox"/> | |
| Subdivision Map Act approval | <input type="checkbox"/> | |
| Grading permit | <input type="checkbox"/> | |
| General plan amendment | <input type="checkbox"/> | |
| Specific plan approval | <input type="checkbox"/> | |
| None | <input type="checkbox"/> | |
| Williamson Act Contract cancellation | <input type="checkbox"/> | |
| Other _____ | | |
| (please specify) | | |
| None required | <input type="checkbox"/> | |
- STATE**
- | | | |
|--------------------------------------|-------------------------------------|-------------------------------------|
| CESA Compliance | <input checked="" type="checkbox"/> | (CDFG) |
| Streambed alteration permit | <input checked="" type="checkbox"/> | (CDFG) |
| CWA § 401 certification | <input checked="" type="checkbox"/> | (RWQCB) |
| Coastal development permit | <input type="checkbox"/> | (Coastal Commission/BCDC) |
| Reclamation Board approval | <input checked="" type="checkbox"/> | |
| Notification | | (DPC, BCDC) |
| Other <u>State Lands Commission;</u> | | Lease across State submerged lands. |
| (please specify) | | |
| None required | <input type="checkbox"/> | |
- FEDERAL**
- | | | |
|--|-------------------------------------|---------|
| ESA Consultation | <input checked="" type="checkbox"/> | (USFWS) |
| Rivers & Harbors Act permit | <input type="checkbox"/> | (ACOE) |
| CWA § 404 permit | <input checked="" type="checkbox"/> | (ACOE) |
| Other <u>FEMA letter of Map Revisions - Flood Plain Encroachment</u> | | |
| (please specify) | | |
| None required | <input type="checkbox"/> | |

DPC = Delta Protection Commission
 CWA = Clean Water Act
 CESA = California Endangered Species Act
 USFWS = U.S. Fish and Wildlife Service
 ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act
 CDFG = California Department of Fish and Game
 RWQCB = Regional Water Quality Control Board
 BCDC = Bay Conservation and Development Comm.

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Land Use Checklist

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?

YES

X

NO

2. If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only).
Planning, preliminary design only, and environmental work only.

3. If YES to # 1, what is the proposed land use change or restriction under the proposal?

N/A

4. If YES to # 1, is the land currently under a Williamson Act contract? N/A

YES

NO

5. If YES to # 1, answer the following:

Current land use

Current zoning

Current general plan designation

N/A

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps? N/A

YES

NO

DON'T KNOW

7. If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal? N/A

8. If YES to # 1, is the property currently being commercially farmed or graded? N/A

YES

NO

9. If YES to #8, what are

the number of employees _____ N/A _____

the total number of employees _____

10. Will the applicant acquire any interest in land under the proposal (fee title **or** a conservation easement)?

YES

 X
NO

11. What entity/organization will hold the interest? N/A

12. If **YES** to # 10, answer the following:

Total number of acres to be acquired under proposal

 N/A

Number of acres to be acquired in fee

Number of acres to be subject to conservation easement

13. **For all proposals** involving physical changes to the land **or** restriction in land **use**, describe what entity **or** organization will:

manage the property

 N/A

provide operations and maintenance services

conduct monitoring

14. **For** land acquisitions (fee title or easements), **will** existing water rights also be acquired? **N/A**

YES

NO

15. **Does** the applicant propose any modifications to the water right **or** change in the delivery of the water? **N/A**

YES


NO

16. If **YES** to # 15, describe N/A

Contract Forms

APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0348-0043

1. TYPE OF SUBMISSION: <input checked="" type="checkbox"/> Application <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Non-Construction		2. DATE SUBMITTED 05-15-00	Applicant Identifier
		3. DATE RECEIVED BY STATE	State Application Identifier
5. APPLICANT INFORMATION Legal Name: Tehama-Colusa Canal Authority Address (give city, county, State, and zip code): P.O. Box 1025 Willows, CA 95988 Glenn County		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier
		Organizational Unit: Same	
6. EMPLOYER IDENTIFICATION NUMBER (EIN): 68-0139216		7. TYPE OF APPLICANT: (enter appropriate letter in box) <u>G</u> A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify) _____	
8. TYPE OF APPLICATION: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other(specify): _____		9. NAME OF FEDERAL AGENCY: Bureau of Reclamation	
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: TITLE N/A		11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: Fish Passage Improvement Project at the Red Bluff Diversion Dam Phase II (Second Portion)	
12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): Tehama, Glenn, Colusa and Yolo Counties, State of California		14. CONGRESSIONAL DISTRICTS OF:	
13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date 04-01-01	Ending Date 04-01-02	a. Applicant 3rd District	b. Project 3rd District
15. ESTIMATED FUNDING.		16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? N/A	
a. Federal	\$ 1,574,000	a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____	
b. Applicant	\$ 100,100	b. No. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E. O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW	
c. State	\$	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation. <input checked="" type="checkbox"/> No	
d. Local	\$		
e. Other	\$		
f. Program Income	\$		
g. TOTAL	\$ 1,674,100		
18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.			
a. Type Name of Authorized Representative Arthur R. Bullock		b. Title General Manager	c. Telephone Number (530) 934-2125
d. Signature of Authorized Representative 		e. Date Signed 05-15-00	

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required facesheet for preapplications and applications Submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

- | Item: | Entry: | Item | Entry |
|-------|---|------|--|
| 1. | Self-explanatory | 12. | List only the largest political entities affected (e.g., State, counties, cities). |
| 2. | Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable). | 13. | Self-explanatory |
| 3. | State use only (if applicable) | 14. | List the applicant's Congressional District and any District(s) affected by the program or project. |
| 4. | If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank. | 15. | Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate <u>only</u> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15. |
| 5. | Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application. | 16. | Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is Subject to the State intergovernmental review process. |
| 6. | Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service. | 17. | This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes. |
| 7. | Enter the appropriate letter in the space provided. | 18. | To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be Submitted as part of the application.) |
| 8. | Check appropriate box and enter appropriate letter(s) in the space(s) provided:

-- "New" means a new assistance award.

-- "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.

-- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. | | |
| 9. | Name of Federal agency from which assistance is being requested with this application. | | |
| 10. | Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested. | | |
| 11. | Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project. | | |

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY						
Grant Program Function or Activity	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
		\$	\$	\$ 1,574,000	\$ 100,100	\$ 1,674,100
3.						
4.						
Totals		\$	\$	\$ 1,574,000	\$ 100,100	\$ 1,674,100
SECTION B - BUDGET CATEGORIES						
6. Object Class Categories		GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)		
a. Personnel	\$ 68,800	\$	\$	\$	\$	\$ 68,800
b. Fringe Benefits	17,200					17,200
c. Travel						
d. Equipment						
e. Supplies						
f. Contractual	1,574,000					1,574,000
g. Construction						
h. Other	14,100					14,100
i. Total Direct Charges (sum of 6a-6h)	1,674,100					1,674,100
j. Indirect Charges						
k. TOTALS (sum of 6i and 6j)	\$ 1,674,100	\$	\$	\$	\$	\$ 1,674,100
7. Program Income	\$	\$	\$	\$	\$	\$

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

SECTION C - NON-FEDERAL RESOURCES					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS	
8.	\$ 100,100	\$	\$	\$ 100,100	
9.					
10.					
11.					
12. TOTAL (sum of lines 8-11)	\$ 100,100	\$	\$	\$ 100,100	
SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 1,574,000	\$ 470,000	\$ 395,000	\$ 395,000	\$ 314,000
14. Non-Federal	100,100	25,000	25,000	25,000	25,100
15. TOTAL (sum of lines 13 and 14)	\$ 1,674,100	\$ 495,000	\$ 420,000	\$ 420,000	\$ 339,100
SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT					
(a) Grant Program	FUTURE FUNDING PERIODS (Years)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16.	\$	\$	\$	\$	
17.					
18.					
19.					
20. TOTAL (sum of lines 16-19)	\$	\$	\$	\$	
SECTION F - OTHER BUDGET INFORMATION					
21. Direct Charges:		22. Indirect Charges:			
23. Remarks:					

ASSURANCES • NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040) Washington, DC 20503.


PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET.
SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 5794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. 5874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality Control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §97401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 551271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE General Manager & Chief Engineer
APPLICANT ORGANIZATION Tehama-Colusa Canal Authority	DATE SUBMITTED 05-15-00

U.S. Department of the Interior

Certifications Regarding Debarment, Suspension and
Other Responsibility Matters. Drug-Free Workplace
Requirements and Lobbying

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - **Lower** Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used: use this form for certification and sign; or use Department of the Interior Form 1954 (DI-1954). [See Appendix A of Subpart D of 43 CFR Part 12.]

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12.1)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 16. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters -
Primary Covered Transactions

CHECK ☐ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -
Lower Tier Covered Transactions

CHECK ☐ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
March 1995
(The form consolidates DI-1953, DI-1954,
DI-1955, DI-1956 and DI-1957)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK ☒ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition:
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace:
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction:
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

E. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Tehama-Colusa Canal Authority
5513 Highway 162, Willows, Glenn County
California 95988

Check ☐ if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK ☐ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant:
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

PART E: Certification Regarding Lobbying
Certification **for** Contracts, Grants, Loans, and Cooperative Agreements

*CHECK X IF CERTIFICATION ~~IS~~ FOR THE AWARD OF ANY OF THE FOLLOWING AND
THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT ~~OR~~ COOPERATIVE AGREEMENT,
SUBCONTRACT. ~~OR~~ SUBGRANT UNDER THE GRANT ~~OR~~ COOPERATIVE AGREEMENT.*

*CHECK IF CERTIFICATION ~~IS~~ FOR THE AWARD OF A FEDERAL
LOAN EXCEEDING THE AMOUNT OF \$150,000, ~~OR~~ A SUBGRANT ~~OR~~
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.*

The undersigned certifies, to the best of his or her knowledge and belief,, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL



TYPED NAME AND TITLE General Manager & Chief Engineer

DATE 05-15-00

01-2010

March 1995

(This form consolidates DI-1953, DI-1954,

01-1955, DI-1956 and DI-1963)

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 10 (REV. 3-95) FMC

COMPANY NAME

Tehama-Colusa Canal Authority

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990(a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Arthur R. Bullock

DATE EXECUTED

May 04, 2000

EXECUTED IN THE COUNTY OF

Shasta

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

General Manager & Chief Engineer

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Tehama-Colusa Canal Authority

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH RID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
)ss
COUNTY OF SHASTA)

Arthur R. Bullock , being first duly sworn, deposes and
 (name)
 says that he or she is General Manager & Chief Engineer of
 (position title)
Tehama-Colusa Canal Authority
 (the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: May 04, 2000

By Justin M. Ballack
(person signing for bidder)

Subscribed and sworn to before me on

May 4, 2000
Dora Herrera
(Notary Public)



(Notarial Seal)

Appendix

Request for Next-phase Funding

Requests for Next-phase Funding

Project Description

The objectives of this project are to reduce the impacts of the RBDD on upstream and downstream migration of anadromous fish, while improving the reliability of agricultural water supply. Feasible alternatives involve various RBDD “gates-in” and “gates-out” scenarios, with associated improvements to existing facilities and construction of new facilities.

Scientific Merit of Project

The project addresses CALFED’s Target 1: “Minimize survival problems for adult and juvenile anadromous fish at RBDD by permanently raising the gates during the non-irrigation season and improving passage facilities during the irrigation season” and Programmatic Action 1A: “Upgrade fish passage facilities at the RBDD (CALFED ERPP, Volume II, 1999a, page 190). CALFED states (1999a, page 163), “Fish passage at RBDD is a longstanding problem that has been partially solved through reoperation. This interim fix has constrained water diversion, and the longer term resolution needs to incorporate fish passage and survival and water delivery.” TCCA seeks to identify and implement a feasible structural solution to substantially improve fish passage and water supply reliability at RBDD.

Hypotheses

The scientific hypotheses to be evaluated are that upstream adult passage through the RBDD will improve with modified operations and/or facilities following the proposed project, and downstream juvenile and smolt passage through the RBDD will improve with modified operations and/or facilities following the proposed project.

Conceptual Model

During upstream migration, salmon and steelhead natal to the upper Sacramento River and tributaries are hindered from accessing those spawning areas by operations of the RBDD. Likewise, during downstream emigration, juvenile salmon are subject to increased mortality during the “gates-in” period from increased predation. The conceptual model for Phase II of the project demonstrates the different management approaches represented by the three alternatives currently under consideration. Alternative 1 would involve installing new, state-of-the-art fish ladders to alleviate the problem of RBDD as a fish barrier. Alternative 2 would provide new fish ladders and reduce the period of “gates-in” operation to a 2-month period between July 1 and August 31, the period with fewest juvenile salmon and peak demand for irrigation districts along the TC and Coming canals. Alternative 3 would eliminate “gates-in” operations entirely. All three alternatives include additional pumping capacity to increase water-supply reliability to TCCA. Phase II will result in the selection of the preferred alternative.

Adaptive Management Framework

The Fish Passage Improvement Project at the RBDD builds upon many years of study and previous adaptive management actions. Since the startup of RBDD and the canal system in 1966, many changes in the operation of the dam and modifications to existing facilities and additions of onsite facilities have

been made to mitigate fish passage impacts. This project recognizes the history of large-scale adaptive management at RBDD and attempts to balance the competing interests of fish passage and water supply reliability. In an effort to improve fish passage, the period of "gates-in" has been gradually decreased over the last 11 years to the current 4 months, from May 15 to September 14. This operational change has improved fish passage conditions, but it has also forced the TCCA to supplement its water supply with diversions from Stony Creek during the times that gravity diversion at RBDD is not available. These supplies are intermittent, and not reliable over the long term. Pumping capacity at RBDD has also gradually been increased over the years but still can meet less than 50 percent of peak immigration demand.

Phase II of the project builds on past actions to identify structural and operational solutions that will improve fish passage while maintaining a reliable supply of water to TCCA districts. This approach is consistent with the CALFED Strategic Plan for Ecosystem Restoration (CALFED, 1999b, page 11). The current actions are also compatible with CALFED solution principles (Affordable, Equitable, Implementable, Durable, Reduced Conflicts, No Redirected Impacts), highlighting the difference between this project and previous actions. However, due to the complex nature of the problem, it is acknowledged that adaptive management of the facility is likely to continue into the future.

Current Project Status

Accomplishments to Date and Information Generated

Phase I of the project was a feasibility study that resulted in the Prescoping Report cited in this proposal. The Prescoping Report summarizes previous efforts to resolve fish passage problems at RBDD and presents a range of viable alternatives for improving fish passage and the reliability of water deliveries to TCCA member districts.

Fiscal Status

In response to TCCA's April 1999 grant application, CALFED partially funded Phase II of this project. Tasks 1-3 were funded, and Tasks 4-7 were not funded. This proposal seeks the balance of funding to complete Phase II, which will result in preliminary design of the alternatives, an EIS/EIR, an implementation plan, and identification of the preferred project alternative that will be carried forward to final design and construction in subsequent project phases. Work is currently in progress on the funded Tasks 1-3.

Outstanding Regulatory or Implementation Issues

The balance of Phase II funding will provide for completing an EISEIR and an implementation plan that identifies permitting and right-of-way requirements, the project monitoring and data evaluation plan, and other implementation requirements.

Data Collection and Monitoring Program

An extensive historical record exists of both upstream and downstream fish migration at RBDD. The project includes continuation of the existing annual monitoring programs by CDFG and USFWS to document pre- and post-project success in adult immigration. USFWS monitors annual survival, abundance, condition, and seasonal spatial and diel distribution patterns of juvenile salmonids at RBDD. Continued **USFWS** and CDFG monitoring of adult and juvenile salmonid passage and rearing will document project success in relation to downstream emigration.